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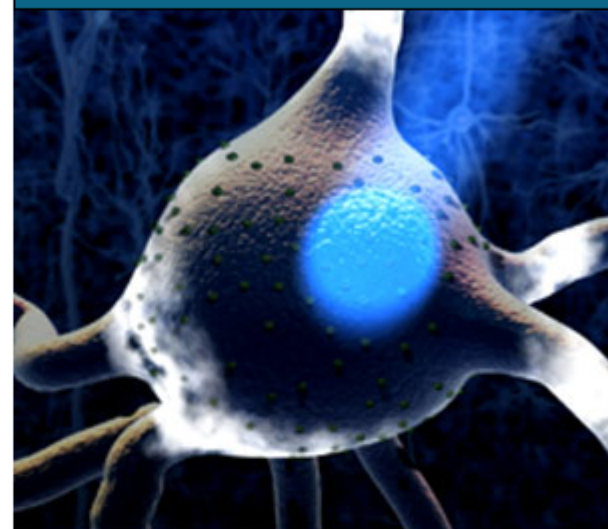
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## Optical Tools for Mapping and Fixing Complex Biological Systems

Join us for a Webinar on Wed, Jul 1, 2015 1:00P EDT

Complex biological systems like the brain present a challenge: their molecular building blocks are organized with nanoscale precision, but support physiological processes and computations that occur over macroscopic length scales. Presenter Ed Boyden and the Synthetic Neurobiology Group are creating tools to enable the mapping and repair of such complex systems.

First, they have developed a method for imaging large 3-D specimens with nanoscale precision. They embed a specimen in a swellable polymer, which upon exposure to water expands isotropically in size, enabling conventional diffraction-limited microscopes to do large-volume nanoscopy. Second, they have collaboratively developed strategies to image fast physiological processes in 3-D with millisecond precision, and used them to acquire neural activity maps throughout small organisms. Finally, they have developed a set of genetically encoded reagents, known as optogenetic tools, that when expressed in specific neurons, enable their electrical activities to be precisely driven or silenced in response to millisecond pulses of light.



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### MARK YOUR CALENDAR

**Date:** Wed, Jul 1, 2015

**Time:** 1:00 PM - 2:00 PM EDT

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